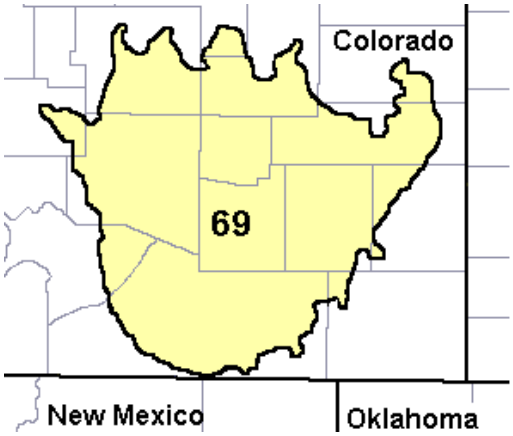
United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description



Site Type: Rangeland

Site Name: Salt Flat

Site ID: R069XY033CO

Major Land Resource Area: 69 – Upper Arkansas Valley Rolling Plains

Physiographic Features

This site occurs on linear to slightly concave, level to gently sloping depressions and flats on plains. These areas receive additional run-on from the surrounding areas. Slick spots (high sodium areas) intermixed with hummocks are common on this site.

Landform: flood plain, terrace, depression, drainageway **Aspect:** N/A

	Minimum	Maximum
Elevation (feet):	3600	6500
Slope (percent):	0	3
Water Table Depth (inches):	60	60
Flooding:		
Frequency:	rare	occasional
Duration:	none	none
Ponding:		
Depth (inches):	0	12
Frequency:	none	occasional
Duration:	none	none
Runoff Class:	slow	medium

Climatic Features

The mean average annual precipitation varies from 10 to 14 inches per year depending on location and ranges from 5 inches to over 24 inches per year. Approximately 75 percent of the annual precipitation occurs during the growing season from mid-April to late-September. Snowfall can vary greatly from year to year and can range from 20 to 40 inches per year. Winds are estimated to average about 6 to 7 miles per hour annually. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 60 miles per hour.

The average length of the growing season is 155 days, but varies from 147 to 162 days. The average date of first frost in the fall is October 10, and the last frost in the spring is about May 5. July is the hottest month and January is the coldest. It is not uncommon for the temperature to exceed 100 degrees F during the summer. Summer humidity is low and evaporation is high. The winters are characterized with frequent northerly winds, producing severe cold with temperatures dropping to as low as -35 degrees F.

Growth of native cool season plants begins about April 15 and continues to about June 1. Native warm season plants begin growth about May 1and continue to about August 15. Regrowth of cool season plants occurs in September and October of most years, depending on moisture.

	Minimum	Maximum
Frost-free period (days):	147	162
Freeze-free period (days):	169	186
Mean Annual Precipitation (inches):	10	14

Average Monthly Precipitation (inches) and Temperature (ºF):

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.28	0.27	12.1	46.4
February	0.14	0.36	15.3	52.9
March	0.25	0.68	20.7	61.5
April	0.73	1.16	28.9	71.8
May	0.90	2.21	38.6	81.1
June	0.83	1.79	47.6	91.4
July	2.34	2.38	53.4	96.2
August	1.62	2.00	51.7	93.7
September	1.04	1.12	43.3	86.0
October	0.90	0.78	32.2	74.2
November	0.49	0.51	21.0	58.1
December	0.43	0.27	14.1	48.6

Climate Stations		Period	
Station ID	**Location or Name**	**From**	**To**
CO6763	Pueblo Army Depot	1971	2000
CO3828	Haswell	1922	2001
CO7287	Rush	1924	2001
CO4834	Las Animas	1930	2001

For detailed information visit the Western Regional Climate Center at http://www.wrcc.dri.edu/ website.

Influencing Water Features

Wetland Description:	System	Subsystem	Class	Sub-class
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are very deep but also include moderately deep and deep soils. Typically, they are moderately well or well drained and have very slow or slow permeability. These soils formed in alluvium derived from mixed calcareous sources that have accumulated salts in the subsoil from runoff, historic water tables, or parent material. They occur on flood plains, drainageways, depressions, playas and terraces. The available water capacity is typically high for the deep and very deep soils and low to moderate for the moderately deep soils. The soil surface layer ranges from 3 to 8 inches thick and is typically loam, fine sandy loam, clay loam, silty clay loam, clay or silt loam. The pH ranges from slightly alkaline to moderately alkaline in the surface and strongly alkaline to very strongly alkaline in the subsoil and substratum. The soil moisture regime is typically ustic aridic, but ranges to aridic in the driest areas of MLRA 69. The soil temperature regime is mesic.

The Historic Climax Plant Community (HCPC) should portray slight to no evidence of rills, wind scoured areas or pedestaled plants. Water flow paths, if any, are broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers. The soil surface is stable and intact. Sub-surface soil layers are non-restrictive to water movement and root penetration. Slick spots are high sodium areas that contain no vegetation. They are inherent to the site and are intermingled with areas of vegetation.

Major soil series correlated to this ecological site include:
Arvada, Beckton, Deertrail eroded, Koen, Limon, Manvel eroded, and Manzanola eroded.

Other soil series that have been correlated to this site include: none

Parent Material Kind: alluvium
Parent Material Origin: sedimentary
Surface Texture: fine sandy loam, silt loam, loam, clay loam, silty clay loam, clay
Surface Texture Modifier: none

Subsurface Texture Group: clay loam, silty clay loam, silty clay, clay
Surface Fragments ≤ 3" (% Cover): 0
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 0 to 15
Subsurface Fragments > 3" (% Volume): 0

	Minimum	Maximum
Drainage Class:	moderately well	well
Permeability Class:	slow	very slow
Depth (inches):	20	60
Electrical Conductivity (mmhos/cm)*:	1	8
Sodium Absorption Ratio*:	15	40
Soil Reaction (1:1 Water)*:	7.8	9.4
Soil Reaction (0.1M CaCl2)*:	7.6	9.0
Available Water Capacity (inches)*:	2.0	7.0
Calcium Carbonate Equivalent (percent)*:	1	15

*These attributes represent 0-40 inches in depth or to the first restrictive layer.

Plant Communities

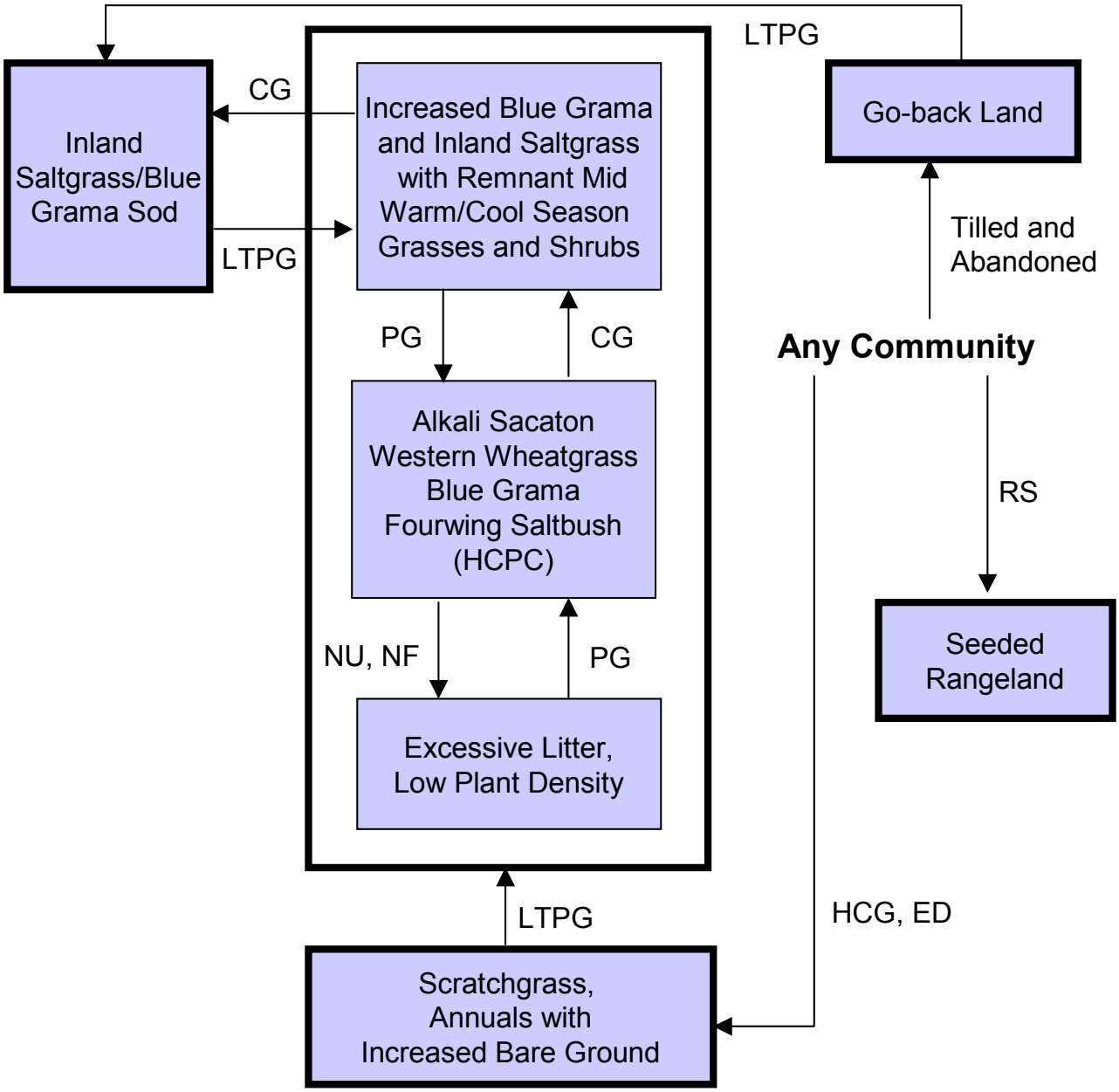
Ecological Dynamics of the Site:
As this site deteriorates from continuous grazing without adequate recovery periods following each grazing occurrence, species such as blue grama and inland saltgrass will increase and eventually form a sod. Alkali sacaton, green needlegrass and western wheatgrass will decrease in frequency and production as well as key shrubs such as fourwing saltbush and winterfat. American vetch, and other highly palatable forbs, will decrease also. Scratchgrass, annuals and bare ground increases with long term continuous grazing. Plant communities subjected to long periods of non-use (rest) will accumulate excess litter and plant density can eventually be reduced.

Drier and warmer climatic conditions exist in the central portion of MLRA-69. This area includes the eastern half of Pueblo county, northern Otero, extreme northwestern Bent, western edge of Kiowa, southern edge of Lincoln and all of Crowley County. These conditions are primarily caused by a rain shadow effect from the southern Rocky Mountains. Evapotranspiration rates (atmospheric demand) will be higher in this area of MLRA-69. Total annual production will typically be lower.

The historic climax plant community (description follows the plant community diagram) has been determined by study of rangeland relic areas, areas protected from excessive disturbance, seasonal use pastures, short durationl/time controlled grazing and historical accounts.

The following is a diagram that illustrates the common plant communities that can occur on the site and the transition pathways (arrows) among communities. Bold lines surrounding each plant community or communities represent ecological thresholds. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways



CG - continuous grazing without adequate recovery opportunity, **ED** - excessive defoliation, **HCG** - heavy continuous grazing, **HCPC** - Historic Climax Plant Community, **LTCG** - long term continuous grazing (>40 yrs), **LTPG** - long term prescribed grazing (>40 yrs), **NF** - no fire, **NU** - non-use, **PG** - prescribed grazing with adequate recovery period, **RS** - range seeding

Plant Community Composition and Group Annual Production

			Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush (HCPC)		
COMMON/GROUP NAME	**SCIENTIFIC NAME**	**SYMBOL**	**Group**	**lbs./acre**	**% Comp**
GRASSES & GRASS-LIKES			*1*	*750 - 900*	*75 - 90*
alkali sacaton	Sporobolus airoides	SPAI	1	300 - 400	30 - 40
western wheatgrass	Pascopyrum smithii	PASM	1	150 - 200	15 - 20
blue grama	Bouteloua gracilis	BOGR2	1	100 - 150	10 - 15
alkali bluegrass	Poa juncifolia	POJU	1	50 - 100	5 - 10
galleta	Pleuraphis jamesii	PLJA	1	50 - 100	5 - 10
inland saltgrass	Distichlis spicata	DISP	1	30 - 50	3 - 5
green needlegrass	Nassella viridula	NAVI4	1	20 - 50	2 - 5
vine mesquite	Panicum obtusum	PAOB	1	10 - 50	1 - 5
alkali muhly	Muhlenbergia asperifolia	MUAS	1	10 - 30	1 - 3
buffalograss	Buchloe dactyloides	BUDA	1	0 - 30	0 - 3
bottlebrush squirreltail	Elymus elymoides ssp. elymoides	ELELE	1	0 - 20	0 - 2
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	1	0 - 20	0 - 2
sideoats grama	Bouteloua curtipendula	BOCU	1	0 - 20	0 - 2
Indian ricegrass	Achnatherum hymenoides	ACHY	1	0 - 10	0 - 1
little barley	Hordeum pusillum	HOPU	1	0 - 10	0 - 1
red threeawn	Aristida purpurea var. longiseta	ARPUL	1	0 - 10	0 - 1
ring muhly	Muhlenbergia torreyi	MUTO2	1	0 - 10	0 - 1
sand dropseed	Sporobolus cryptandrus	SPCR	1	0 - 10	0 - 1
sun sedge	Carex inops ssp. heliophila	CAINH2	1	10 - 30	1 - 3
other perennial grasses		2GP	1	10 - 30	1 - 3
FORBS			*2*	*50 - 100*	*5 - 10*
American vetch	Vicia americana	VIAM	2	10 - 20	1 - 2
Fremont goldenweed	Oonopsis foliosa var. foliosa	OOFOF	2	10 - 20	1 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	2	10 - 20	1 - 2
twogrooved milkvetch	Astragalus bisulcatus	ASBI2	2	0 - 20	0 - 2
American licorice	Glycyrrhiza lepidota	GLLE3	2	0 - 10	0 - 1
broadleaf milkweed	Asclepias latifolia	ASLA4	2	0 - 10	0 - 1
curlycup gumweed	Grindelia squarrosa	GRSQ	2	0 - 10	0 - 1
desert princesplume	Stanleya pinnata var. pinnata	STPIP	2	0 - 10	0 - 1
fetid marigold	Dyssodia papposa	DYPA	2	0 - 10	0 - 1
golden corydalis	Corydalis aurea	COAU2	2	0 - 10	0 - 1
hairy goldaster	Heterotheca villosa	HEVI4	2	0 - 10	0 - 1
ironplant goldenweed	Machaeranthera pinnatifida ssp. pinnatifida var. pinnatifida	MAPIP4	2	0 - 10	0 - 1
poison suckleya	Suckleya suckleyana	SUSU2	2	0 - 10	0 - 1
purple prairie clover	Dalea purpurea var. purpurea	DAPUP	2	0 - 10	0 - 1
other perennial forbs		2FP	2	10 - 30	1 - 3
SHRUBS			*3*	*50 - 150*	*5 - 15*
fourwing saltbush	Atriplex canescens	ATCA2	3	50 - 100	5 - 10
winterfat	Krascheninnikovia lanata	KRLA2	3	10 - 20	1 - 2
green plume rabbitbrush	Ericameria nauseosa ssp. nauseosa var. glabrata	ERNAG	3	0 - 20	0 - 2
black greasewood	Sarcobatus vermiculatus	SAVE4	3	0 - 10	0 - 1
broom snakeweed	Gutierrezia sarothrae	GUSA2	3	0 - 10	0 - 1
James' frankenia	Frankenia jamesii	FRJA	3	0 - 10	0 - 1
plains pricklypear	Opuntia polyacantha	OPPO	3	0 - 10	0 - 1
other shrubs		2SHRUB	3	10 - 30	1 - 3

Annual Production lbs./acre	LOW	RV*	HIGH
GRASSES & GRASS-LIKES	310 -	825	- 1140
FORBS	45 -	75	- 105
SHRUBS	45 -	100	- 155
TOTAL	400 -	1000	- 1400

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. *RV = Representative value.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community

This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock and can be found on areas that are properly managed with prescribed grazing that allows for adequate recovery periods following each grazing event.

The historic climax plant community consists mainly of mid warm and cool season grasses. The principle dominant plants are alkali sacaton, western wheatgrass and blue grama. Grasses of secondary importance are alkali bluegrass, galleta, vine mesquite, green needlegrass and inland saltgrass. Forbs and shrubs such as American vetch, Fremont goldenweed, fourwing saltbush and winterfat are significant. The HCPC is about 75-90% grasses and grass-likes, 5-10% forbs and 5-15% shrubs.

This plant community is diverse, stable and productive. Litter is properly distributed with very little movement off-site and natural plant mortality is very low. Slick spots (bare exposed areas, high in sodium) are an inherent characteristic occupying less than 3% of the community. This is a sustainable plant community in terms of soil stability, watershed function and biological integrity.

Total annual production ranges from 400 to 1400 pounds of air-dry vegetation per acre and will average 1000 pounds during an average year.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: CO6901
Growth curve name: Warm season/cool season co-dominant; MLRA-69; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	10	20	30	20	10	3	2	0	0

(monthly percentages of total annual growth)

Transitions or pathways leading to other plant communities are as follows:

- Continuous grazing without adequate recovery periods following grazing events will shift this plant community to the *Increased Blue Grama and Inland Saltgrass with remnant Mid Warm/Cool Season Grasses and Shrubs Plant Community.*
- Non-use (rest) or absence of fire will move this plant community to the *Excessive Litter, Low Plant Density Plant Community.*
- Prescribed grazing that allows for adequate recovery opportunity following each grazing event and proper stocking will maintain the *Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community (HCPC).*

Increased Blue Grama and Inland Saltgrass with Remnant Mid Warm/Cool Season Grasses and Shrubs Plant Community

This community developed with longer term continuous grazing and lack of adequate recovery periods between grazing events. Blue grama and inland saltgrass have increased but have not yet developed into a sod bound condition. Alkali sacaton is scattered in reduced amounts. Cool season grasses such as western wheatgrass, green needlegrass and alkali bluegrass have been reduced. American vetch has also decreased. Fourwing saltbush and winterfat are greatly reduced in abundance. Forbs and shrubs such as scarlet globemallow, Fremont goldenweed, green plume rabbitbrush and broom snakeweed has increased.

Total aboveground carbon has been lost due to decreases in forage and litter production. Reduction of rhizomatous wheatgrass, nitrogen fixing forbs, shrub component and increased warm season shortgrasses has begun to alter the biotic integrity of this community. Water and nutrient cycles may be impaired. Slick spots (bare high sodium areas) may be developing or increasing.

Total annual production ranges from 200 to 700 pounds of air-dry vegetation per acre and will average 450 pounds during an average year.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: CO6903
Growth curve name: Warm season dominant, cool season sub-dominant; MLRA-69; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	15	35	25	15	5	0	0	0

(monthly percentages of total annual growth)

Transitions or pathways leading to other plant communities are as follows:

- Continuous grazing without adequate recovery opportunities following each grazing event will shift this plant community across an ecological threshold toward the *Inland Saltgrass/Blue Grama Sod Plant Community.*
- Prescribed grazing with adequate recovery periods following each grazing event and proper stocking will return this plant community to the *Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community (HCPC).*

Excessive Litter, Low Plant Density Plant Community

This plant community occurs when grazing is removed for long periods of time (rest) in the absence of fire. Plant composition is similar to the HCPC, however individual species production and frequency will be lower.

Much of the nutrients are tied up in excessive litter. The semiarid environment and the absence of animal traffic to break down litter slow nutrient recycling. Aboveground litter also limits sunlight from reaching plant crowns. Many plants, especially bunchgrasses die off. Thick litter and absence of grazing animals (animal impact) or fire reduce seed germination and establishment.

In advanced stages, plant mortality can increase and erosion may eventually occur if bare ground increases. Once this happens it will require increased energy input in terms of practice cost and management to bring back.

Total annual production ranges from 300 to 1000 pounds of air-dry vegetation per acre.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: CO6902
Growth curve name: Warm season/cool season co-dominant, excess litter; MLRA-69; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	22	33	18	12	5	0	0	0

(monthly percentages of total annual growth)

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing with adequate recovery opportunity following each grazing event or prescribed burning followed by prescribed grazing can restore this plant community back to the *Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community (HCPC).*

Inland Saltgrass/Blue Grama Sod Plant Community

This plant community developed with further continuous grazing. Inland saltgrass and blue grama are the dominant species and have developed into a sod bound condition. Slick spots have increased in size. Alkali sacaton, alkali bluegrass, green needlegrass, fourwing saltbush and winterfat have been removed. Green plume rabbitbrush, plains prickleypear, broom snakeweed, curlycup gumweed, poison suckleya, red threeawn and scratchgrass have increased. Western wheatgrass may be present in remnant amounts where moisture conditions are favorable.

A significant amount of production and diversity has been lost when compared to the HCPC. Major reduction or loss of cool season grasses, shrub component and nitrogen fixing forbs has negatively impacted energy flow and nutrient cycling. Slick spots have increased in size, accelerated by blowing salt and soil, and may be connected by developing flow paths. The plant community exhibits an impaired water cycle.

It will take a long time to bring this plant community back to the HCPC with management alone. Renovation (mechanical and/or chemical inputs) is not recommended due to high salt content of the soil and saltgrass persistence.

Total annual production ranges from 100 to 400 pounds of air-dry vegetation per acre and will average 200 pounds during an average year.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: CO6904
Growth curve name: Warm season dominant; MLRA-69; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	0	15	45	25	15	0	0	0	0

(monthly percentages of total annual growth)

Transitions or pathways leading to other plant communities are as follows:

- Heavy continuous grazing or excessive defoliation without adequate recovery opportunities between grazing events will shift this plant community (or any plant community) across and ecological threshold toward the *Scratchgrass and Annuals with Increased Bare Ground Plant Community.* This transition can take greater than 40 years to achieve.
- Long-term prescribed grazing with adequate recovery periods following each grazing occurrence and proper stocking over long periods of time will move this plant community toward the *Increased Blue Grama and Inland Saltgrass with Remnant Mid Warm/Cool Season Grasses and Shrubs Plant Community* and eventually to the *HCPC* if viable seed/vegetative sources exist. This transition will require a long period of time to accomplish and may be difficult to attain depending on the degree of degradation.

Scratchgrass and Annuals with Increased Bare Ground Plant Community

This plant community develops with heavy continuous grazing and/or occupation by prairie dogs. It is in an extremely degraded condition. Blue grama and western wheatgrass have been removed. Some inland saltgrass will persist in localized areas. Lower successional perennial species that dominate the community are scratchgrass, red threeawn and poison suckleya. Russian thistle, kochia and cocklebur are common invading annuals.

Litter levels are extremely low and bare ground is a major concern. Increased slick spots, soil crusting, reduced infiltration and ponding are present. Flow paths are connected and plant pedestalling evident. Organic matter/carbon reserves are greatly reduced. This community is not stable. Desertification is obvious.

Total annual production ranges from 50 to 150 pounds of air-dry vegetation per acre.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: CO6903
Growth curve name: Warm season dominant, cool season sub-dominant; MLRA-69; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	15	35	25	15	5	0	0	0

(monthly percentages of total annual growth)

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing with adequate recovery periods between grazing events and proper stocking can eventually move this community back to the *HCPC* or associated successional plant community stages depending upon the degree of degradation and the availability of an adequate seed/vegetative source. This transition may take up to 40 years or more to accomplish.

Seeded Rangeland

Any Community, which has been degraded or tilled and seeded to adapted native plant species, is considered *Seeded Rangeland*. A seed mixture of grasses, forbs and shrubs can be used to accomplish various management objectives however, revegetation practices are extremely difficult and costly to install due to severe soil limitations.

Go-back Land

Go-back land is created when the soil from *Any Plant Community*, is tilled or farmed (sodbusted) and abandoned. All of the native plants are destroyed, soil organic mater is reduced, soil structure is changed and a plowpan or compacted layer is formed. Residual synthetic chemicals often remain from past farming operations and erosion processes may be active.

Go-back land evolves through several plant communities beginning with an early annual plant community, which initiates the revegetation process. Plants such as Russian thistle, kochia and other annuals begin to establish. These plants give some protection from erosion and start to build minor levels of soil organic matter. This early annual plant community lasts for two to several years. Red threeawn, sand dropseed and several other early perennials can dominate the plant community for five to eight years or more. Inland saltgrass has the ability to withstand tillage and persists. Eventually western wheatgrass, blue grama and other natives become reestablished.

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing with adequate recovery periods following each grazing occurrence during the growing season and proper stocking will most likely return this plant community back to *HCPC* or associated successional plant communities via the *Inland Saltgrass/Blue Grama Sod Plant Community*. This transition can take upwards of 40 years or more to accomplish.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

This ecological site may be wetter than some others in MLRA 69, potentially providing breeding habitat for amphibian species that is missing on drier ecological sites. Even with the wetter conditions, this site is not expected to support a fishery or permanent water bodies. Some species may use this area for reproductive functions or for other phases of their lives then move into the grassland once those needs are met. Historic large grazers that influenced these plant communities were bison, elk, and pronghorn. Changes to the plant community over time have resulted in the loss of bison, the reduction in elk numbers, and pronghorn population swings. Domestic grazers now share these habitats with wildlife. The grassland communities of eastern Colorado are home to many bird species. Changes in the composition of the plant community when moving from the HCPC to other communities on this ecological site may result in dramatic species shifts in the bird community. Mule and white-tailed deer may use this ecological site, however the shrub cover is too low to expect more than occasional use. The gray wolf and wild bison used this ecological site in historic times. The wolf is thought to be extirpated from Eastern Colorado. Bison are currently found only as domestic livestock.

Alkali Sacaton, Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community (HCPC)

The loamy soils and landscape position of this ecological site may discourage some burrowing amphibians, reptiles, and mammals found on adjacent upland sites from using this site. Woodhouse's toad is expected on this site along with reptiles such as bullsnake and glossy snake. The structural diversity in the plant community found on the HCPC is attractive to a number of bird species such as Cassin's and Brewer's sparrow and ferruginous and Swainson's hawks. Mammals that may use the site for foraging or cover include jackrabbit, badger, coyote, swift fox, and pocket mouse.

Blue Grama and Inland Saltgrass with Remnant Mid Warm/Cool Season Grasses and Shrubs Plant Community

Most HCPC species are expected in this plant community. The reduction in mid and tall grasses and the increase in shorter species may attract mountain plover, horned lark, long-billed curlew, and black-tailed jackrabbit.

Inland Saltgrass/Blue Grama Sod; Excessive Litter, Low Plant Density; Go Back Land Plant Communities

The reduction of shrubs and taller grasses in these plant communities results in a shift of bird species away from the HCPC birds. Use by species such as mountain plover, horned lark, and long-billed curlew would increase. Mammals, reptiles, and amphibians from the HCPC may continue to use these communities.

Scratchgrass and Annuals with Increased Bare Ground Plant Community

Many of the species found in the Inland Saltgrass/Blue Grama Sod are expected here. The presence of tall species such as kochia, Russian thistle, rabbitbrush, snakeweed, and others in this community may limit use by mountain plover and other species requiring unobstructed visual distances.

Seeded Rangeland

The wildlife species expected on seeded rangeland would be those listed for the plant community the seeding most resembles.

Animal Preferences (Quarterly – 1,2,3,4†)

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses and Grass-likes							
alkali bluegrass	U D U D	D P U D	U D U D	U P N D	U P N D	U D U D	U D U D
alkali muhly	U U D U	U U D U	U U D U	N N N N	N N N N	U U D U	U U D U
alkali sacaton	U D D U	N U N N	U D D U	N U N N	N U N N	U D D U	U D D U
blue grama	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D
bottlebrush squirreltail	U D U U	U D U U	U D U U	U D U U	U D U U	U D U U	U D U U
buffalograss	D D P D	D D P D	D D P D	D D P D	D D P D	D D P D	D D P D
galleta	N N U N	N N U N	N N U N	N N U N	N N U N	N N U N	N N U N
green needlegrass	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
Indian ricegrass	D P D D	D P D D	D P D D	D P D D	D P D D	D P D D	D P D D
inland saltgrass	N U U N	N N N N	N U U N	N N N N	N N N N	N U U N	N U U N
little barley	U U U U	U U U U	U U U U	U D N U	U D N U	U U U U	U U U U
Nuttall's alkaligrass	U P D D	P P P P	U P D D	P P P P	P P P P	U P D D	U P D D
red threeawn	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
ring muhly	N N N N	U U U U	N N N N	U U U U	U U U U	N N N N	N N N N
sand dropseed	U D U N	N U D N	U D U N	N U D N	N U D N	U D U N	U D U N
sideoats grama	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U
sun sedge	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
vine mesquite	U D P U	U D D U	U D P U	U D D U	U D D U	U D P U	U D P U
western wheatgrass	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
Forbs							
American licorice	U U D U	N U U N	U U D U	N U U N	N U U N	U U D U	N U U N
American vetch	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D
broadleaf milkweed	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
curlycup gumweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
desert princesplume	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
fetid marigold	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
Fremont goldenweed	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
golden corydalis	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
hairy goldaster	U U D U	N N N N	U U D U	N N N N	N N N N	U U D U	N N N N
ironplant goldenweed	U D D U	U P P U	U D D U	U P P U	U P P U	U D D U	U D D U
poison suckleya	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
purple prairie clover	U P P D	U P P U	U P P D	U P P U	U P P U	U P P D	U P P D
scarlet globemallow	U D D U	U P P U	U D D U	U P P U	U P P U	U D D U	U D D U
twogrooved milkvetch	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
Shrubs							
black greasewood	U D D U	T T T T	U D D U	D U U D	D U U D	U D D U	D U U U
broom snakeweed	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
fourwing saltbush	P D D P	P D D P	P D D P	P D D P	P D D P	P D D P	P D D P
green plume rabbitbrush	N N N D	D D D D	N N N D	D D D D	D D D D	N N N D	N N N D
James' frankenia	N N U U	U U N U	N N U U	U U N U	U U N U	N N U U	N N U U
plains pricklypear	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
winterfat	P P D P	P P P P	P P D P	P P P P	P P P P	P P D P	P P D P

N = not used; **U** = undesirable; **D** = desirable; **P** = preferred; **T** = toxic
† Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

Animal Community – Grazing Interpretations

The following table lists suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions however, *continuous grazing is not recommended.* These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

Plant Community	Production (lbs./acre)	Stocking Rate (AUM/acre)
A. Sacaton, W. Wheatgrass, B. Grama, Fourwing Saltbush (HCPC)	1000	0.32
Increased Blue Grama/Saltgrass w/Remnant Warm/Cool Grasses/Shrubs	450	0.14
Inland Saltgrass/Blue Grama Sod	200	0.06
Low Plant Density, Excessive Litter	*	*
Scratchgrass, Annuals, Increased Bare Ground	*	*

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangelands in this area provide yearlong forage under prescribed grazing for cattle, sheep, horses and other herbivores. During the dormant period, livestock may need supplementation based on reliable forage analysis.

* Highly variable; stocking rate needs to be determined on site.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic groups B, C and D. Infiltration is moderate to slow and runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where shortgrasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to NRCS Section 4, National Engineering Handbook (NEH-4) for runoff quantities and hydrologic curves).

Recreational Uses

This site provides hunting, hiking, photography, bird watching and other opportunities. The wide varieties of plants that bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

(069XY006CO) – Loamy (formerly Loamy Plains)
(069XY037CO) – Saline Overflow
(069XY030CO) – Salt Meadow
(069XY047CO) – Alkaline Plains

Similar Sites

(069XY030CO) – Salt Meadow
[available water table, higher production, absence of slick spots]
(069XY032CO) – Sandy Salt Flat
[sandy surface texture, presence of tall warm season grasses]

Inventory Data References

Information presented here has been derived from NRCS clipping data, numerous ocular estimates and other inventory data. Field observations from experienced range trained personnel were used extensively to develop this ecological site description. Specific data information is contained in individual landowner/user case files and other files located in county NRCS field offices.

Those involved in developing this site description include: Ben Berlinger, Rangeland Management Specialist, NRCS; Scott Woodall, Rangeland Management Specialist, NRCS; Lee Neve, Soil Scientist, NRCS; Julie Elliott, Rangeland Management Specialist, NRCS; Terri Skadeland, Biologist, NRCS.

State Correlation

N/A

Field Offices

Canon City, Colorado Springs, Cheyenne Wells, Eads, Holly, Hugo, Lamar, Las Animas, Pueblo, Rocky Ford, Simla, Springfield, Trinidad, Walsenburg

Other References

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (http://hpcc.unl.edu)

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (http://wcc.nrcs.usda.gov)

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Site Description Approval

/s/ 03/25/2004

State Range Management Specialist Date